<u>REMARKS</u>

Claims 19-37 are now pending in the application, with claims 19 and 25 being the independent claims. Reconsideration and further examination are respectfully requested.

In the Office Action, claims 19-36 have been rejected under 35 USC § 103(a) over U.S. Patent 6,226,675 (Meltzer) in view of U.S. Patent 6,961,760 (Li). Withdrawal of this rejection is respectfully requested for the following reasons.

Conventionally, when an automated Web-based service and an automated client communicate with each other, highly specific (and matching) protocols must be observed by both parties. As a result, ad hoc communications are nearly impossible without a great deal of advance coordination. In addition, even where the appropriate protocols have been specifically defined by both sides, permitting communication to occur, any desired changes or enhancements often are very difficult to implement. For example, changes to the Web service typically require substantial recoding of the server logic and, in order to maintain compatibility, the client logic as well.

Similarly, the client logic ordinarily must be specifically tailored to each individual server system with which it wishes to interact. Then, such client logic subsequently must be updated whenever those server systems are updated, again in an effort to maintain compatibility.

One structural aspect of the present invention is the separation of logic flows (transitions), underlying functional units (transactions) and any necessary document conversions (transformations) into separately defined components. As a result, conversation definitions often are easier to construct initially, and then any necessary changes usually can be accommodated much more easily.

For example, upon discovering a certain required minimum amount of information about the transactions, transition structure and/or document types utilized by a particular automated Web service, a client operating in accordance with the present invention often will be able to conduct an ad hoc conversation with that Web service. In other words, a system according to the present invention can be provided with enough flexibility so that it is not be necessary to have complete information about any particular Web service in order to conduct a conversation with it.

Additionally, the present invention can facilitate modifications to accommodate new business processes and/or changes to existing business processes made by either participant. Often, neither the automated Web service nor the automated client will need to modify any of its underlying code, but instead can accommodate such changes, e.g., by simply modifying certain defined transitions and/or transformations.

In this latter regard, the present invention employs a set of transformations that often can further facilitate ad hoc communications, e.g., by automatically converting one type of document used by the client into another type of document used by the Web service, or vice versa. Such capability often can free the software developers from having to worry about document mismatches. As long as the general type of document is the same (e.g., the necessary substantive information is included) and the specific document types are supported in the defined transactions or transformations, the two parties generally will be able to exchange documents on an ad hoc basis.

Finally, the separation of document type definitions, transactions, transition structure and transformations according to the present invention often can achieve the advantages described above in a highly efficient manner. For example, in representative embodiments of the present

invention a central library of transactions and/or transformations is maintained, used and reused by a variety of Web services, thereby creating uniformity, while at the same time providing developers with the ability to easily create and/or modify Web services.

Thus, independent claim 19 is directed to one or more computer-readable media storing a computer language. The computer language includes: (a) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used; (b) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types; (c) a set of transformations for use in connection with the defined interactions, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure, together with instructions for applying such transformations to compensate for mismatches between documents actually received and expected inbound document types; and (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions. Significantly, each of (a)-(d) is a separately defined component of the computer language.

The foregoing combination of features often can provide for flexibility that is not achievable with conventional systems, and this combination of features is not disclosed or suggested by the applied art. For example, no permissible combination of Meltzer and Li would have disclosed or suggested a computer language having an overall structure in which each of the recited elements (a)-(d) is provided as a separately defined component of the computer language.

Rather, any permissible combination of Meltzer and Li only would have suggested a conventional system in which some or all of such components, if provided at all, are tightly integrated with each other. As noted above, such a tight integration generally requires significant recoding whenever changes are to be made, irrespective of whether those changes are motivated internally or externally. In addition, such a conventional system generally would require significant recoding whenever a client wishes to communicate with a new Web service.

With regard to this feature of the invention, the Office Action simply asserts, "the fact that these [elements (a)-(d)] are defined as components of the computer language is implied if not inherent when dealing with systems in an environment as shown in Meltzer." Thus, even the Office Action does not assert that "<u>each</u> of [elements] (a)-(d) is a <u>separately</u> defined component of said computer language [emphasis added]" as is actually claimed in independent claim 19.

Although the change in the Office Action's wording might at first seem fairly slight, the resulting change in meaning is highly significant in the context of the present invention. That is, the fact that each of the recited elements is a <u>separately defined</u> component of a computer language can, if implemented appropriately, provide the necessary decoupling to allow for vastly improved efficiencies in defining and adapting the conversational abilities of automated agents. However, it is precisely this separation (or decoupling) that even the Office Action has not alleged to be present in the applied art.

Because of this important distinction, in the following discussion each of elements (a)-(d) is discussed below in the context of the final wherein clause of claim 19. That is, each individual element is discussed in terms of whether the applied art fairly discloses or suggests not only the presence of such element but whether such element is defined separately from the others of elements (a)-(d).

Initially, the Office Action cites column 18 lines 42-55 as showing element (a) of claim 19. However, that portion of Meltzer actually states that Meltzer's service operation/description defines both the functionality of the service <u>and</u> the input and output documents used by the service. In other words, that portion of Meltzer indicates a tight coupling between document types and interactions (using the present claim terminology). Such a tight coupling is exactly the opposite of independent claim 19, in which "(a) a plurality of defined document type descriptions" and "(b) a set of defined interactions and interactions" are separately defined components.

Column 21 lines 33-40 of Meltzer is cited in the Office Action as showing element (b) of claim 19. However, that portion of Meltzer has been studied in detail and says nothing at all about a set of defined interactions, much less a set of defined interactions that is separately defined from a plurality of document type descriptions, a set of transformations and a transition structure, as presently claimed. Rather, the cited portion of Meltzer only appears to note that "a market participant is able to identify itself, and identify the types of input documents and the types of output documents with which it is willing to transact business."

Column 22 lines 43-51 of Meltzer is cited in the Office Action as showing element (d) of claim 19. However, that portion of Meltzer has been studied in detail and merely describes certain advantages of XML document types and XML type markup languages. It says nothing at all about a transition structure as a separately defined component of the computer language.

For at least the foregoing reasons, independent claim 19 is believed to be allowable over the applied art.

Independent claim 25 is directed to a conversation controller for controlling a conversation between a Web service and an external entity, the controller including: (a) a

communications interface for exchanging documents with a Web service and an external entity;

(b) a plurality of defined document type descriptions, each document type description specifying a type of document within a common document structure that can be used; (c) a set of defined interactions, each interaction specifying any expected inbound document types and any resulting outbound document types; (d) a transition structure that maps all permissible flows for a given conversation by identifying interactions from the set of defined interactions and specifying transitions between the identified interactions; (e) a set of transformations, each transformation specifying how to convert one document type in the common document structure to another document type, also in the common document structure; (f) a control processor for exchanging documents with the Web service and with the external entity through the communications interface in accordance with the transition structure; and (g) a transformation component that maps document types using the set of transformations to compensate for mismatches between documents actually received from the external entity and expected inbound document types. Moreover, each of (b)-(e) is a separately defined component of the conversation controller.

Claim 25 was rejected on the same grounds that were used in rejecting independent claim 19. Accordingly, for similar reasons to those set forth above, claim 25 also is believed to be allowable over the applied art.

In addition, claim 25 recites certain other features that are not even addressed in the Office Action. For instance, claim 25 recites a communications interface for exchanging documents with a Web service and an external entity, a control processor for exchanging documents with the Web service and with the external entity through the communications interface in accordance with the transition structure, and a transformation component that maps document types using the set of transformations to compensate for mismatches between

documents actually received from the external entity and expected inbound document types. Applicants have studied the applied art in detail, and nothing in it even remotely suggests these aspects of the invention.

Accordingly, for these additional reasons independent claim 25 is believed to be allowable over the applied art.

The other pending claims depend from independent claims 19 and 25 discussed above and are therefore believed to be allowable for at least the same reasons. In addition, each such dependent claim recites at least one additional feature of the invention that further distinguishes such claim from the applied art. Accordingly, the individual reconsideration of each on its own merits is respectfully requested.

New claim 37 depends from independent claim 19 and recites the additional features that the set of defined interactions models states of the given conversation, the transition structure defines flows between states for the given conversation, and each state is defined independently of how the given conversation was navigated to reach such state. These features of the invention are supported, e.g., at page 4 lines 8-11, page 5 lines 13-30, page 6 lines 22-25 and page 14 lines 33-37 of the Specification. The applied art has been studied in detail and is not seen to disclose or to suggest these features, particularly in combination with the other features of independent claim 19, from which claim 37 depends. For these additional reasons, claim 37 is believed to be allowable over the applied art.

In order to sufficiently distinguish Applicants' invention from the applied art, the foregoing remarks emphasize several of the differences between the applied art and Applicants' invention. However, no attempt has been made to categorize each novel and unobvious difference. Applicants' invention comprises all of the elements and all of the interrelationships
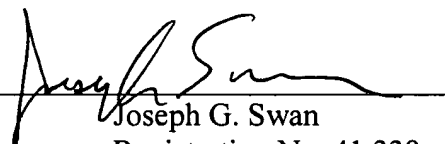
between those elements recited in the claims. It is believed that for each claim the combination of such elements and interrelationships is not disclosed, taught or suggested by the applied art. It is therefore believed that all claims in the application are fully in condition for allowance, and an indication to that effect is respectfully requested.

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Respectfully submitted,
MITCHELL, SILBERBERG & KNUPP LLP

MITCHELL, SILBERBERG & KNUPP LLP
11377 West Olympic Boulevard
Los Angeles, California 90064
Telephone: (310) 312-2000
Facsimile: (310) 312-3100

By_____
Joseph G. Swan
Registration No. 41,338